Asbestos Survey and XRF Lead-Based Paint Screening

Former Flint Oil Site

APN 116-23-2070

Tucson, Pima County, Arizona

April 5, 2020

Terracon Project No. 63207024

Prepared for:

City of Tucson Environmental and General Services
Tucson, Arizona

Prepared by:

Terracon Consultants, Inc.
Tucson, Arizona

April 5, 2020

Ms. Gira Patel
City of Tucson Environmental and General Services
4004 South Park Avenue, Building 1
Tucson, AZ 85726

Telephone: (520) 837-3742
E-mail: Gira.Patel@tucsonaz.gov

Re: Asbestos Survey and XRF Lead-Based Paint Screening
Former Flint Oil Site
APN 116-23-2070
Tucson, Pima County, Arizona
Terracon Project No. 63207024, Revision 1

Dear Ms. Patel:

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached report for the above referenced site to City of Tucson Environmental and General Services (Client). The purpose of this report is to present the results of an Asbestos Survey and X-ray fluorescence (XRF) Lead-Based Paint (LBP) Screening performed on March 6, 2020. This survey was conducted in general accordance with Terracon Proposal No. P63207024 dated February 11, 2020 and the Notice to Proceed letter dated February 26, 2020. We understand that this Asbestos Survey and XRF LBP Screening was requested to assist with future demolition/renovation activities.

Terracon appreciates the opportunity to provide this service to City of Tucson Environmental and General Services. If you have any questions regarding this report please call the undersigned at (520) 798-4847 (Derek K.).

Sincerely,
Terracon Consultants, Inc.

Derek R. Sizemore, CHMM
Senior Staff Scientist

Derek D. Koller, CIH, CHMM
Office Manager / Senior Associate

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Terracon Consultants Inc. (Terracon) conducted an Asbestos Survey and X-ray fluorescence (XRF) Lead-Based Paint (LBP) Screening at the vacant building located at APN 116-23-2070 in Tucson, Pima County, Arizona. The survey was conducted on March 6 and March 28, 2020 by Asbestos Hazard Emergency Response Act (AHERA)-accredited asbestos building inspectors and an EPA certified lead paint inspector. This survey was conducted in general accordance with Terracon Proposal No. P63207024 dated February 11, 2020 and the Notice to Proceed letter dated February 26, 2020. We understand that this Asbestos Survey and XRF LBP Screening was requested to assist with future demolition/renovation activities.

The asbestos portion of the survey was performed to satisfy requirements of the Environmental Protection Agency (EPA) Regulation 40 Code of Federal Regulations (CFR) Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP). Suspect ACM samples were collected in general accordance with the sampling protocols outlined in EPA 40 CFR Part 763 Subpart E, known as AHERA. Bulk asbestos samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

The XRF LBP Screening was performed to assist in compliance with Occupational Safety and Health Administration (OSHA) requirements for lead-in-air content during disturbance of painted materials. The screening was performed in general accordance with the procedures prescribed in the EPA's work practice standards for conducting lead paint testing (40 CFR 745.227). The LBP Survey was conducted to meet the requirements of the U.S. Department of Housing and Urban Development (HUD) for LBP surveys. The lead paint survey was conducted using a handheld XRF unit.

Asbestos Findings

Terracon collected 24 bulk samples from 8 homogeneous areas of suspect asbestos-containing materials (ACM) throughout the building. The following asbestos containing materials were identified as a result of laboratory analysis to be asbestos containing:

Material Description	Material Location	Estimated Quantity*
[1]9" x 9" vinyl floor tile (VFT) and Mastic	Office-2 (O-2) and Office 3 (O-3)	450 Sq. Ft.
[2]Transite Pipe	One Exterior (Near Building), One Interior	6 Ln. Ft.

[1]Category I (CAT I) non-friable ACM
[2]Category II (CAT II) non-friable ACM
***Estimated quantities** are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

The listed Category I non-friable ACM that is damaged or could be damaged to the extent that it could be crumbled, pulverized or reduced to powder when dry, making it friable, must be

removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations.

The listed Category II non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder when dry, making it friable, must be removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations. USEPA believes that most demolition activities will subject Category II non-friable ACM to the asbestos NESHAP regulation.

Pursuant to the client's request, Terracon was to reanalyze one vinyl floor tile sample per HA by transmission electron microscopy (TEM) for non-organically bound (NOB) materials if PLM analytical results identified the materials as containing less than 1% asbestos. All vinyl floor tiles analyzed by PLM were found to be ACM. As such, analysis by TEM for NOBs was not required.

A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. The summary of sample locations is presented in Appendix B. Sample location diagrams are provided in Appendix D. Laboratory analytical reports are included in Appendix E.

Terracon can provide the Client with a proposal for developing asbestos abatement specifications (project design) and for performing abatement oversight, air monitoring, and air clearance testing upon request.

XRF Lead-Based Paint Screening

Based on site observations, 41 XRF readings were taken from painted surfaces throughout the interior and exterior of the building on site. A summary of XRF readings is provided below:

- Terracon identified 12 Lead-Containing Paint (LCP) coated surfaces with lead concentrations ranging from 0.1 to 0.9 mg/cm^2 using the handheld XRF.
- Terracon identified the following five LBP coated services during the XRF Screening and confirmed the results with paint chip sampling:
  - Light pink on plaster
  - White on plaster
  - Grayish white wood on window frame
  - Yellow on wood door frame
  - Yellow on wood roof
- As LBP-coated surfaces were identified, Terracon collected one composite sample of painted materials to characterize the potential demolition waste stream for lead by collecting a Toxicity Characteristic Leaching Procedure (TCLP) sample. Analytical laboratory results for the composite sample collected did not identify lead above laboratory the reported detection limit (RDL). As such, the potential demolition waste stream does not require special disposal consideration for lead.
- The XRF LBP Screening results are included in Appendix C.

- The analytical reports for the paint chip samples and TCLP sample are provided in Appendix E.

As detectable lead quantities may constitute a lead dust hazard during construction, personnel performing activities that may disturb painted components with concentrations of lead above the designated analytical detection limit should comply with all current OSHA regulations (29 CFR 1926.62 – Lead Exposure in Construction) in order to minimize employee exposure. The OSHA regulation defines specific training requirements, engineering controls and working practices for construction personnel subject to this standard. Occupational exposure to lead occurring in the course of construction work, including maintenance activities, painting, alteration and repairs is subject to the OSHA "Interim" Lead Exposure in Construction standard.

Construction work covered by 29 CFR 1926.62 includes any repair or renovation activities or other activities that disturb in-place lead-containing materials, but does not include routine cleaning and repainting where there is insignificant damage, wear, or corrosion of existing lead-containing coatings or substrates. Employers must assure that no employee will be exposed to airborne lead at concentrations greater than 50 micrograms per cubic meter ($\mu g/m^3$) averaged over an eight-hour period without adequate protection. The OSHA Standard also establishes an action level of 30 $\mu g/m^3$ which, if exceeded, triggers the requirement for medical monitoring.

1.0 INTRODUCTION

Terracon Consultants Inc. (Terracon) conducted an Asbestos Survey and X-ray fluorescence (XRF) Lead-Based Paint (LBP) Screening at the commercial building located at APN 116-23-2070 in Tucson, Pima County, Arizona. The survey was conducted on March 6 and March 28, 2020 by Asbestos Hazard Emergency Response Act (AHERA)-accredited asbestos building inspectors and an EPA certified lead paint inspector. This survey was conducted in general accordance with Terracon Proposal No. P63207024 dated February 11, 2020 and the Notice to Proceed letter dated February 26, 2020. We understand that this Asbestos Survey and XRF LBP Screening was requested to assist with future demolition/renovation activities.

The asbestos portion of the survey was performed to satisfy requirements of the EPA Regulation 40 CFR Part 61, Subpart M, NESHAP. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in EPA 40 CFR Part 763 Subpart E, known as AHERA. Bulk asbestos samples were delivered to an accredited laboratory for analysis by PLM.

The XRF LBP Screening was performed to assist in compliance with OSHA requirements for lead-in-air content during disturbance of painted materials. The screening was performed in general accordance with the procedures prescribed in the EPA's work practice standards for conducting lead paint testing (40 CFR 745.227). The LBP Survey was conducted to meet the requirements of HUD for LBP surveys. The lead paint survey was conducted using a handheld XRF unit.

1.1 Reliance

This report is for the exclusive use City of Tucson Environmental and General Services (Client) and Tucson Housing and Community Development for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and City of Tucson Environmental and General Services. Reliance on this report by City of Tucson Environmental and General Services, Tucson Housing and Community Development and all authorized parties will be subject to the terms, conditions, and limitations as defined in the Agreement between the Client (City of Tucson Environmental and General Services) and Consultant (Terracon).

2.0 BUILDING DESCRIPTION

The site is developed with one approximate 575 square foot vacant building reportedly constructed in 1926. The floor system of the building consists of poured footings, wood flooring with vinyl tiling. The weight-bearing wall systems are constructed of block. The interior walls are constructed of plaster. The ceiling system consists of a wood deck. The roof system consists of metal on a wood deck.

3.0 FIELD ACTIVITIES

The asbestos survey was conducted by Derek R. Sizemore, an AHERA-accredited asbestos inspector, and the XRF LBP Screening was performed by Derek R. Sizemore, an EPA-certified LBP inspector. Copies of inspector certificates are provided in Appendix F. The survey was conducted in general accordance with the sample collection protocols established in USEPA 40 CFR Part 763 Subpart E Section 763.86, AHERA. A summary of survey activities is provided in this section.

3.1 Visual Assessment

Asbestos
Survey activities were initiated with visual observation of the interior and exterior of the building to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application. Interior assessment was conducted in visually accessible areas of the building proposed for demolition and renovation. Building materials identified as metal, glass, or wood were not considered suspect ACM.

The roofing systems were sampled as part of this survey. Terracon visually inspected all roof layers in multiple places and did not observe additional roofing layers unless mentioned in this report; however, as Terracon could not assess beneath all roofing materials in all areas, there may be isolated areas of additional suspect material present beneath existing roofing. Terracon inspected the interior ceiling, wall, and flooring systems in multiple places throughout the building and did not observe additional coverings/layers except where noted in this report, but there may be additional suspect material present within the building in concealed areas that was not observed.

Lead Paint
Terracon visually assessed the interior and exterior of the existing building to identify construction materials suspect for LCP. Painted/coated surfaces which appear similar throughout in terms of color, texture, substrate and date of application are treated as a unique material for survey purposes. Painted/coated surfaces were visually assessed for evidence of distress, flaking, and/or peeling.

3.2 Physical Assessment

Asbestos
A physical assessment of each HA of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

Lead Paint
A physical assessment of each selected painted surface was conducted to assess its condition. The painted surfaces were assessed as good, fair or poor condition depending on degree of cracking, peeling or chipping.

3.3 Sample Collection

Asbestos Survey
Based on observations, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected 24 bulk samples from 8 homogeneous areas of suspect ACM. A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. A summary of suspect ACM samples collected during the survey is included as Appendix B. Diagrams depicting the site building and sample locations are included in Appendix D.

XRF LBP Screening
An XRF portable lead paint analyzer was used to obtain direct readouts of lead content in coated surfaces in the proposed work areas.

The Heuresis Pb200i XRF utilizes a radioactive source, isotope Cobalt 57 (^{57}Co), to assess the lead content of surface coatings. ^{57}Co emits gamma rays that optically excite the K-shell electrons (causes the electrons to jump to a higher orbital) of atoms. An electron from a different orbital (e.g. L-shell or M-shell) relaxes (falls) to the inner K-shell, filling the vacancy and transforming its potential energy into electro-magnetic radiation of the x-ray spectrum. This quantum mechanical process is called induced x-ray fluorescence. The XRF's internal instrumentation detects the x-rays that collide with its sensor and compares the x-ray's energy to lead's characteristic L-shell to K-shell transition energy.

3.4 Sample Analysis

Asbestos
Bulk suspect ACM samples were submitted under chain of custody to Cates Laboratories for analysis by polarized light microscopy with dispersion staining techniques per USEPA methodology 600/R-93/116. The percentage of asbestos in a sample, where applicable, was determined by microscopic visual estimation.

The EPA recognizes that PLM analysis of asbestos bulk samples can be inaccurate at low concentrations of asbestos (i.e., less than 10%). In Appendix E of 40 CFR 763, Subpart E (Interim Method of the Determination of Asbestos in Bulk Insulation Samples), the EPA codifies point counting as part of the asbestos analytical method. For samples reported with <10% asbestos by PLM visual estimation, the laboratory further analyzed the sampled by the point count method.

Pursuant to the client's request, Terracon was to reanalyze one vinyl floor tile sample per HA by TEM for NOB materials if PLM analytical results identified the materials as containing less than 1% asbestos. All vinyl floor tiles analyzed by PLM were found to be ACM. As such, analysis by TEM for NOBs was not required.

Cates Laboratories was contracted for the PLM analysis of the bulk samples. Cates Laboratories is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) with Accreditation No. 200569-0. A copy of the analytical laboratory report is provided in Appendix E.

Lead Paint
Based on observations, 41 XRF readings were taken from painted surfaces throughout the interior and exterior of the building. Terracon's XRF Screening identified 12 LCPs and 5 LBPs at the site.

As such, Terracon collected four paint chip confirmation samples. Paint chip samples were submitted under chain of custody to International Asbestos Testing Laboratories of Mt. Laurel, NJ for analysis by Flame Atomic Absorption Spectroscopy (FAAS) per USEPA methodology SW846-(3050B:7000B). International Asbestos Testing Laboratories is accredited under the American Industrial Hygiene Association (AIHA) (Accreditation No. 100188). A copy of the analytical laboratory report is provided in Appendix E.

TCLP Sampling of Potential Demolition Debris
Terracon collected one composite sample of painted materials to characterize the potential demolition waste stream for lead. To collect the sample, Terracon filled a 1-gallon sealable plastic bag with materials from various painted surfaces, substrates, and other general building materials. The sample was collected by Mr. Derek Sizemore and submitted for Lead TCLP analysis by EPA Method 1311/6010B. The sample of potential demolition debris was submitted under chain of custody to Pace Analytical of Mt. Juliet, Tennessee, an Arizona Department of Health Services (ADHS) licensed analytical laboratory (ADHS License AZ0612). A copy of the analytical laboratory report is provided in Appendix E.

4.0 REGULATORY OVERVIEW

Asbestos
The Asbestos NESHAP program in Arizona is enforced by federal, state, and county Asbestos NESHAP Coordinators. For projects occurring in Pima County, the County has been delegated authority from the EPA to enforce the Asbestos NESHAP within its respective jurisdictional boundaries, excluding tribal lands.

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. The NESHAP regulation also requires the identification and classification of existing ACM according to friability prior to demolition or renovation activity. Friable ACM is a material containing more than 1% asbestos that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. All friable ACM is considered regulated asbestos containing material (RACM).

The NESHAP regulation classifies ACM as either RACM, Category I non-friable ACM or Category II non-friable ACM. RACM includes all friable ACM, along with Category I and Category II non-friable ACM that has become friable or will be or has been subjected to sanding, grinding, cutting or abrading, or ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of renovation or demolition activity. Category I non-friable ACM are exclusively asbestos-containing packings, gaskets, resilient floor coverings, resilient floor covering mastics and asphalt roofing products that contain more than 1% asbestos. Category II non-friable ACM are all other non-friable materials other than Category I non-friable ACM that contain more than 1% asbestos. Category II non-friable ACM generally includes but is not limited to cementitious material such as: cement pipes, cement siding, Cement Panels (Exterior), glazing, mortar and grouts.

The OSHA Asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30 minute time period known as an excursion limit (EL). The TWA and EL are known as OSHA's permissible exposure limits (PELs). The OSHA standard classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. States which administer their own federally-approved state OSHA programs may require additional precautions.

Lead Paint

The lead paint sampling activities were conducted in general accordance with the EPA's work practice standards for conducting lead activities (40 CFR 745.227). Lead is regulated by the EPA and OSHA.

The Resource Conservation and Recovery Act (RCRA) gave the EPA authority to regulate the waste status of demolition or renovation debris, including Lead-Containing materials. Specific notification and testing requirements must be addressed prior to transporting, treating, storing, or disposing of hazardous wastes. Lead-Containing wastes are considered hazardous waste under RCRA if TCLP results exceed five milligrams per liter (mg/L). EPA exempts from most RCRA requirements those generators whose combined hazardous waste generation is less than 100 kilograms (kg) per month.

The US EPA has established an action level for LBP of 1.0 milligram per square centimeter (mg/cm^2), 0.5% by weight or 5,000 parts per million (ppm). If a sample analytical result is equal to or greater than 1.0 mg/cm^2, 0.5% by weight, or 5,000 ppm, the prepared surface is considered to be LBP.

Detectable lead quantities may constitute a lead dust hazard during renovation and demolition activities. Personnel performing renovation and demolition activities that may disturb painted components and building surfaces with concentrations of lead above the designated analytical detection limit should comply with all current OSHA regulations in order to minimize employee exposure. OSHA defines lead paint as a paint, which contains lead, regardless of the concentration. Currently, any proposed renovation or demolition is subject to the OSHA regulations (29 CFR 1926.62 – Lead Exposure in Construction). The OSHA regulation defines specific training requirements, engineering controls and working practices for construction personnel subject to this standard. Occupational exposure to lead occurring in the course of construction work, including maintenance activities, painting, alteration and repairs is subject to the OSHA "Interim" Lead Exposure in Construction standard.

Construction work covered by 29 CFR 1926.62 includes any repair or renovation activities or other activities that disturb in-place lead-containing materials, but does not include routine cleaning and repainting where there is insignificant damage, wear, or corrosion of existing lead-containing coatings or substrates. Employers must assure that no employee will be exposed to lead at concentrations greater than 50 micrograms per cubic meter ($\mu g/m^3$) averaged over an eight-hour period without adequate protection. The OSHA Standard also establishes an action level of 30 $\mu g/m^3$ which, if exceeded, triggers the requirement for medical monitoring.

The above overview is not intended to be inclusive of all potentially pertinent regulatory information. The relevant EPA and OSHA standards should be consulted prior to undertaking activities involving the demolition, renovation, or maintenance of surfaces coated with lead paints.

5.0 FINDINGS AND RECOMMENDATIONS

Asbestos Findings

Terracon collected 24 bulk samples from 8 homogeneous areas of suspect asbestos-containing materials (ACM) throughout the building. The following asbestos containing materials were identified as a result of laboratory analysis to be asbestos containing:

Material Description	Material Location	Estimated Quantity*
[1]9" x 9" VFT and Mastic	O-2 and O-3	450 Sq. Ft.
[2]Transite Pipes	One Exterior of Building, One Interior	6 Ln. Ft.

[1]Category I (CAT I) non-friable ACM
[2]Category II (CAT II) non-friable ACM

***Estimated quantities** are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

The listed Category I non-friable ACM that is damaged or could be damaged to the extent that it could be crumbled, pulverized or reduced to powder when dry, making it friable, must be removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations.

The listed Category II non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder when dry, making it friable, must be removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations. USEPA believes that most demolition activities will subject Category II non-friable ACM to the asbestos NESHAP regulation.

Pursuant to the client's request, Terracon was to reanalyze one vinyl floor tile sample per HA by transmission electron microscopy (TEM) for non-organically bound (NOB) materials if PLM analytical results identified the materials as containing less than 1% asbestos. All vinyl floor tiles analyzed by PLM were found to be ACM. As such, analysis by TEM for NOBs was not required.

A summary of the classification, condition and approximate quantity of identified ACM is presented in Appendix A. The summary of sample locations is presented in Appendix B. Sample location diagrams are provided in Appendix D. Laboratory analytical reports are included in Appendix E.

Terracon can provide the Client with a proposal for developing asbestos abatement specifications (project design) and for performing abatement oversight, air monitoring, and air clearance testing upon request.

XRF Lead-Based Paint Screening

Based on site observations, 41 XRF readings were taken from painted surfaces throughout the interior and exterior of the building on site. A summary of XRF readings is provided below:

- Terracon identified 12 LCP coated surfaces with lead concentrations ranging from 0.1 to 0.9 mg/cm^2 using the handheld XRF.
- Terracon identified the following five LBP coated services during the XRF Screening and confirmed the results with paint chip sampling:
  - Light pink on plaster
  - White on plaster
  - Grayish white wood on window frame
  - Yellow on wood door frame
  - Yellow on wood roof
- As LBP-coated surfaces were identified, Terracon collected one composite sample of painted materials to characterize the potential demolition waste stream for lead

by collecting a TCLP sample. Analytical laboratory results for the composite sample collected did not identify lead above laboratory the reported detection limit (RDL). As such, the potential demolition waste stream does not require special disposal consideration for lead.

- The XRF LBP Screening results are included in Appendix C.
- The analytical reports for the paint chip samples and TCLP sample are provided in Appendix E.

As detectable lead quantities may constitute a lead dust hazard during construction, personnel performing activities that may disturb painted components with concentrations of lead above the designated analytical detection limit should comply with all current OSHA regulations (29 CFR 1926.62 – Lead Exposure in Construction) in order to minimize employee exposure. The OSHA regulation defines specific training requirements, engineering controls and working practices for construction personnel subject to this standard. Occupational exposure to lead occurring in the course of construction work, including maintenance activities, painting, alteration and repairs is subject to the OSHA "Interim" Lead Exposure in Construction standard.

Construction work covered by 29 CFR 1926.62 includes any repair or renovation activities or other activities that disturb in-place lead-containing materials, but does not include routine cleaning and repainting where there is insignificant damage, wear, or corrosion of existing lead-containing coatings or substrates. Employers must assure that no employee will be exposed to airborne lead at concentrations greater than 50 micrograms per cubic meter ($\mu g/m^3$) averaged over an eight-hour period without adequate protection. The OSHA Standard also establishes an action level of 30 $\mu g/m^3$ which, if exceeded, triggers the requirement for medical monitoring.

6.0 LIMITATIONS/GENERAL COMMENTS

Terracon did not perform sampling which required excessive demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled. Sampling did not include suspect materials which could not be safely reached with available ladders/man-lifts.

This Asbestos Survey and XRF LBP Screening was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the building. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date.

This report has been prepared on behalf of and exclusively for use by City of Tucson Environmental

and General Services and Tucson Housing and Community Development for specific application to their project as discussed. **This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary.** Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

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APPENDIX A

Former Flint Oil Site
APN 116-23-2070
Tucson, Pima County, Arizona
Terracon Project No. 63207024

IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

HA No.	Material Description	Material Location	% and Type Asbestos^	NESHAP Classification	Condition	Estimated Quantity*
6	9" x 9" VFT and Mastic	O-2 and O-3	5% Chrysotile – Floor Tile 5% Chrysotile – Black Mastic	Cat I Non-Friable	Fair	450 Sq. Ft.
8	Transite Pipe	One Exterior (Near Building) One Interior	18% Chrysotile / 2% Crocidolite	Cat II Non-Friable	Good	6 Ln. Ft.

^% & Type Asbestos = this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

***Estimated quantities** are based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

The materials listed in this table have been sampled and determined to contain asbestos in concentrations greater than 1%. When disturbed, various federal, state and local regulations may apply. These materials should be monitored for damage over time and repaired as necessary by appropriately trained personnel. Removal may be necessary before renovations and in most cases before a demolition. See Appendix B for a summary of samples collected. See Appendix E for detailed analytical results.

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APPENDIX B

Former Flint Oil Site
APN 116-23-2070
Tucson, Pima County, Arizona
Terracon Project No. 63207024

ASBESTOS SURVEY SAMPLE SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Lab Results
1	Plaster Walls	1-HP2-1	0-3	None Detected – Paint Layer
1	Plaster Walls	1-HP2-1	0-3	None Detected – Plaster
1	Plaster Walls	1-HP2-2	0-3	None Detected – Paint Layer
1	Plaster Walls	1-HP2-2	0-3	None Detected – Plaster
1	Plaster Walls	1-HP2-3	0-1	None Detected – Paint Layer
1	Plaster Walls	1-HP2-3	0-1	None Detected – Plaster
2	Brick/Mortar	2-MA1-4	Exterior	None Detected – Paint Layer
2	Brick/Mortar	2-MA1-4	Exterior	None Detected – Brick
2	Brick/Mortar	2-MA1-4	Exterior	None Detected – Mortar
2	Brick/Mortar	2-MA1-5	Exterior	None Detected – Brick
2	Brick/Mortar	2-MA1-5	Exterior	None Detected – Mortar
2	Brick/Mortar	2-MA1-6	Exterior	None Detected – Brick
2	Brick/Mortar	2-MA1-6	Exterior	None Detected – Mortar
3	Concrete Footings	3-FC2-7	Exterior	None Detected – Concrete
3	Concrete Footings	3-FC2-8	Exterior	None Detected – Concrete
3	Concrete Footings	3-FC2-9	Exterior	None Detected – Concrete
4	12" X 12" ACT	4-CT1-10	0-3	None Detected
4	12" X 12" ACT	4-CT1-11	0-1	None Detected

ppm = parts per million
Shaded Bold = Lead-Based Paint

APPENDIX B (Continued): ASBESTOS SURVEY SAMPLE SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Lab Results
4	12" X 12" ACT	4-CT1-12	0-2	None Detected
5	Roof Tar	5-RF1-13	Roof	None Detected
5	Roof Tar	5-RF1-14	Roof	None Detected
5	Roof Tar	5-RF1-15	Roof	None Detected
6	**9" X 9" VFT/Mastic**	**6-FT1-16**	**0-2**	**5% Chrysotile – Floor Tile**
6	**9" X 9" VFT/Mastic**	**6-FT1-16**	**0-2**	**5% Chrysotile – Black Mastic**
6	**9" X 9" VFT/Mastic**	**6-FT1-17**	**0-3**	**3% Chrysotile – Floor Tile**
6	**9" X 9" VFT/Mastic**	**6-FT1-17**	**0-3**	**None Detected – Yellow Mastic**
6	**9" X 9" VFT/Mastic**	**6-FT1-18**	**0-3**	**5% Chrysotile – Floor Tile**
6	**9" X 9" VFT/Mastic**	**6-FT1-18**	**0-3**	**5% Chrysotile – Black Mastic**
7	Wallpaper Adhesive	7-MG5-19	0-2	None Detected – Wall Covering
7	Wallpaper Adhesive	7-MG5-19	0-2	None Detected – Clear Adhesive
7	Wallpaper Adhesive	7-MG5-20	0-2	None Detected – Wall Covering
7	Wallpaper Adhesive	7-MG5-20	0-2	None Detected – Clear Adhesive
7	Wallpaper Adhesive	7-MG5-21	0-2	None Detected – Wall Covering
7	Wallpaper Adhesive	7-MG5-21	0-2	None Detected – Clear Adhesive
8	**Transite Pipe**	**8-CP2-22**	**Exterior**	**18% Chrysotile / 2% Crocidolite**
8	**Transite Pipe**	**8-CP2-23**	**Exterior**	**18% Chrysotile / 2% Crocidolite**
8	**Transite Pipe**	**8-CP2-24**	**Exterior**	**18% Chrysotile / 2% Crocidolite**

Samples in **bold** contain ≤1% asbestos by rounding
Samples in **shaded bold** contain **>**1% asbestos
PC = Point Count Analysis

APPENDIX C

Former Flint Oil Site
APN 116-23-2070
Tucson, Pima County, Arizona
Terracon Project No. 63207024

XRF LBP SCREENING AND CONFIRMATION LEAD PAINT CHIP SAMPLE SUMMARIES

XRF LBP SCREENING SUMMARY

March 6, 2020					
XRF Reading No.	**Paint Description**	**Location**	**Side**	**Condition**	**Results (mg/cm^2)**
CAL 1	Pre-Calibration				1.0
CAL 2	Pre-Calibration				1.0
CAL 3	Pre-Calibration				1.0
1	**Light pink wood door frame**	**0-3**	**C**	**Fair**	**0.8**
2	**Light pink on plaster**	**0-3**	**A**	**Fair**	**5.3**
3	**Light pink on wood window frame**	**0-3**	**A**	**Fair**	**0.5**
4	**White on wood cabinet**	**0-3**	**C**	**Fair**	**0.3**
5	**Light pink on wood door**	**0-2**	**B**	**Fair**	**0.7**
6	**White on plaster**	**0-2**	**C**	**Fair**	**2.8**
7	**White on wood wall trim**	**0-2**	**A**	**Good**	**0.8**
8	**White on wood window frame**	**0-2**	**B**	**Fair**	**0.6**
9	**White on wood door frame**	**0-2**	**B**	**Fair**	**0.6**
10	**Pink/yellow on brick**	**Exterior**	**A**	**Poor**	**0.3**
11	**Tan on brick**	**Exterior**	**C**	**Poor**	**0.1**
12	**Grayish white wood window frame**	**Exterior**	**B**	**Poor**	**2.8**

ppm = parts per million
Shaded Bold = Lead-Based Paint

XRF LBP SCREENING SUMMARY (CONTINUED)

March 6, 2020					
XRF Reading No.	**Paint Description**	**Location**	**Side**	**Condition**	**Results (mg/cm^2)**
13	**Grayish white wood door**	**Exterior**	**C**	**Poor**	**0.4**
14	**Grayish white wood door frame**	**Exterior**	**C**	**Poor**	**0.8**
15	**Yellow on wood door frame**	**Exterior**	**C**	**Poor**	**5.9**
16	**White on wood trusses**	**Exterior**	**D**	**Poor**	**0.9**
17	**Yellow on wood roof**	**Exterior**	**D**	**Poor**	**6.6**
CAL 4	Post-Calibration				1.0
CAL 5	Post-Calibration				1.0
CAL 6	Post-Calibration				1.0

March 28, 2020					
XRF Reading No.	**Paint Description**	**Location**	**Side**	**Condition**	**Results (mg/cm^2)**
CAL 7	Pre-Calibration				1.0
CAL 8	Pre-Calibration				0.9
CAL 9	Pre-Calibration				1.0
18	**Light pink on plaster**	**O-3**	**B**	**Fair**	**5.6**
19	**Light pink on plaster**	**O-3**	**C**	**Fair**	**4.0**
20	**Light pink on plaster**	**O-3**	**D**	**Fair**	**3.1**
21	**Light pink on plaster**	**O-3**	**Ceiling**	**Fair**	**1.2**
22	**Light pink on plaster**	**O-2**	**Ceiling**	**Fair**	**1.1**
23	**Light pink on plaster**	**O-2**	**A**	**Fair**	**2.9**
24	**Light pink on plaster**	**O-2**	**D**	**Fair**	**3.1**
25	**White on plaster**	**O-2**	**B**	**Fair**	**3.3**
26	**White on plaster**	**O-2**	**C**	**Fair**	**3.0**
27	**Light pink on plaster**	**O-1**	**A**	**Fair**	**3.1**

mg/cm^2 = milligram per centimeter squared
Bold = Lead Containing Paint
Shaded Bold = Lead-Based Paint
CAL = Calibration Test

XRF LBP SCREENING SUMMARY (CONTINUED)

March 28, 2020					
XRF Reading No.	**Paint Description**	**Location**	**Side**	**Condition**	**Results (mg/cm^2)**
28	**Light pink on plaster**	**O-1**	**B**	**Fair**	**4.6**
29	**Light pink on plaster**	**O-1**	**C**	**Fair**	**4.4**
30	**Light pink on plaster**	**O-1**	**D**	**Fair**	**4.8**
31	**Light pink on plaster**	**O-1**	**Ceiling**	**Fair**	**1.2**
32	**Light pink on wood door frame**	**O-2**	**B**	**Fair**	**0.6**
33	**Light pink on wood door**	**O-1**	**B**	**Fair**	**0.7**
34	**Light pink on wood door**	**O-2**	**B**	**Fair**	**0.5**
35	**Light pink on wood window frame**	**O-1**	**C**	**Fair**	**0.6**
36	**Light pink on wood door**	**O-3**	**C**	**Fair**	**0.4**
37	**Pink/Yellow on brick**	**Exterior**	**B**	**Poor**	**0.1**
38	**Pink/Yellow on brick**	**Exterior**	**C**	**Poor**	**0.2**
39	**Pink/Yellow on brick**	**Exterior**	**D**	**Poor**	**0.5**
40	**Greyish white on wood door**	**Exterior**	**A**	**Good**	**0.4**
41	**Greyish white on wood door frame**	**Exterior**	**A**	**Good**	**0.6**
CAL 10	Post-Calibration				1.0
CAL 11	Post-Calibration				0.9
CAL 12	Post-Calibration				0.9

mg/cm^2 = milligram per centimeter squared
Bold = Lead Containing Paint
Shaded Bold = Lead-Based Paint
CAL = Calibration Test

CONFIRMATION LEAD PAINT CHIP SAMPLE SUMMARY

Sample #	Paint Description	Sample Location	Condition	Lab Results (ppm)
L-1	**Light pink on plaster Confirmation Sample of XRF Reading 2**	**0-3**	**Fair**	**18,000**
L-2	**White on plaster Confirmation Sample of XRF Reading 6**	**0-2**	**Fair**	**9,900**
L-3	**Grayish white wood window frame Confirmation Sample of XRF Reading 12**	**Exterior**	**Poor**	**35,000**
L-4	**Yellow on wood door frame Confirmation Sample of XRF Reading 15**	**Exterior**	**Poor**	**44,000**
L-5	**Yellow on wood roof Confirmation Sample of XRF Reading 17**	**Exterior**	**Poor**	**56,000**

ppm = parts per million

ppm = parts per million
Shaded Bold = Lead-Based Paint

APPENDIX D
SAMPLING LOCATION DIAGRAMS

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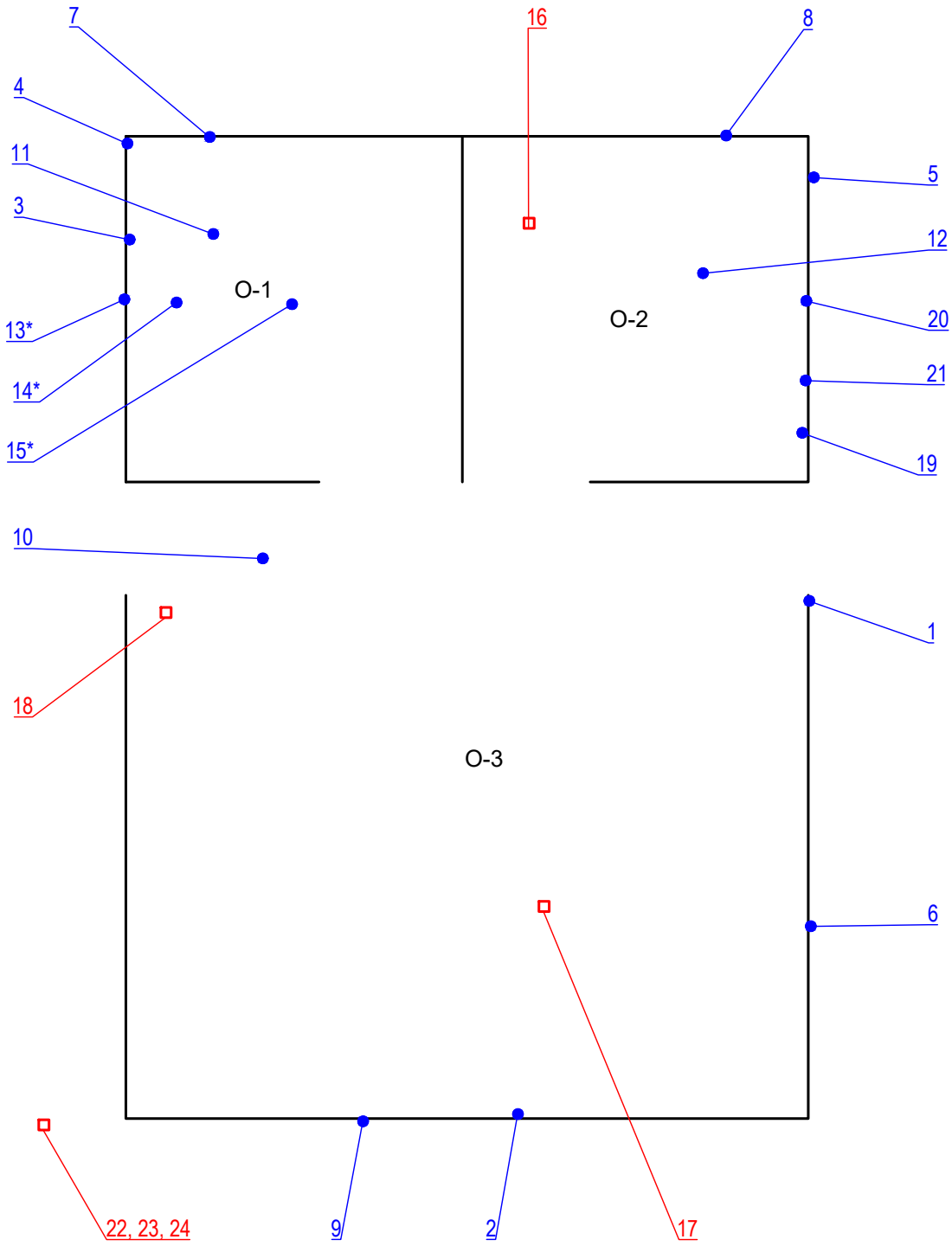


LEGEND

- APPROXIMATE SAMPLE LOCATION (NON-ACM)
- APPROXIMATE SAMPLE LOCATION (ACM)
- * ROOF SAMPLE LOCATIONS

ACMs

HA 6: Samples 16-18: 9" x 9" VFT and Mastic

HA 8: Samples 22-24: Transite Pipe

N

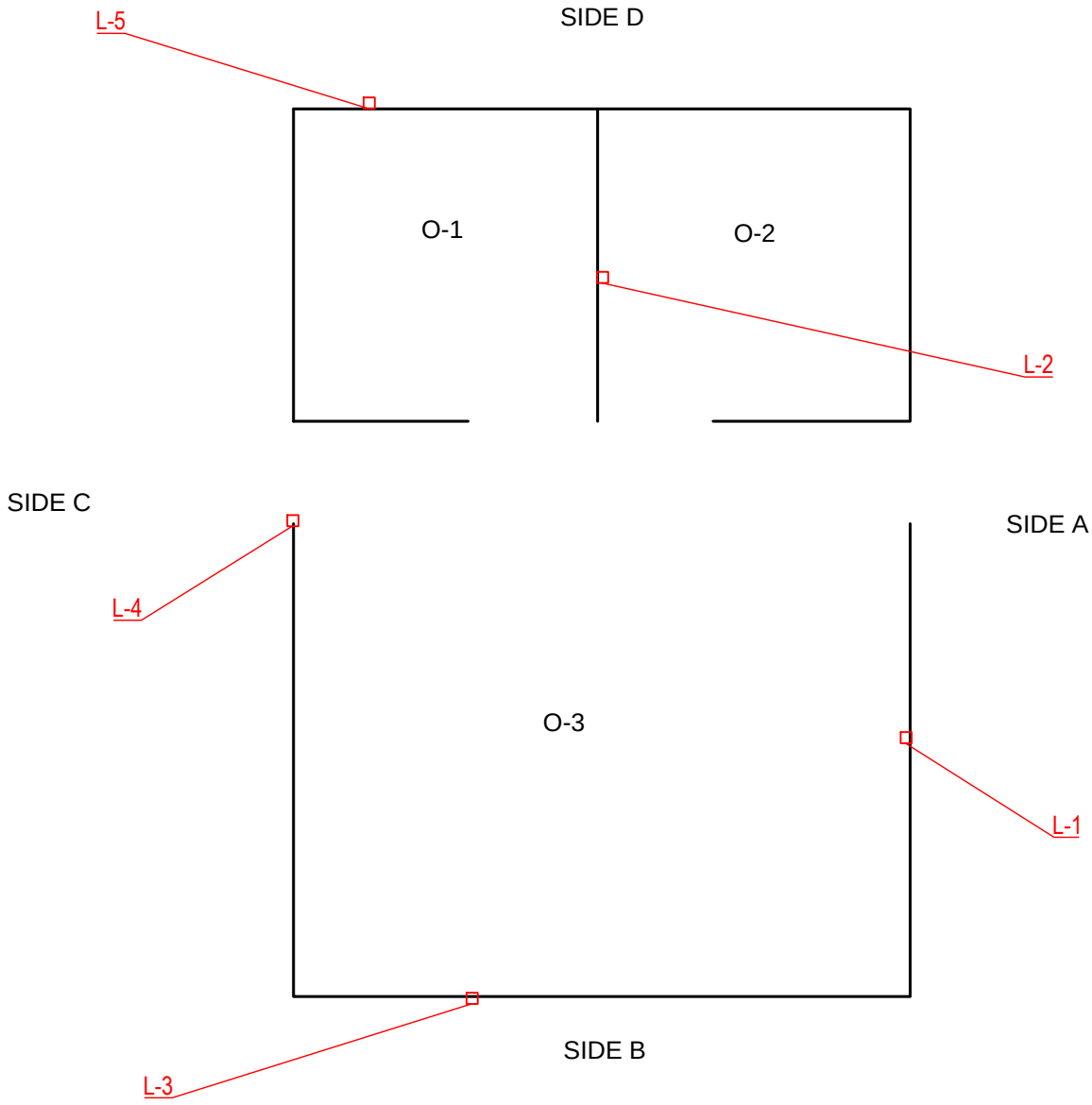
Project Mngr:	DRS
Drawn By:	DRS
Checked By:	DDK
Approved By:	DDK
Project No.	63207024
Scale:	NOT SHOWN
File No.	63207024.dwg
Date:	03-2020

Terracon
Consulting Engineers and Scientists
355 SOUTH EUCLID, SUITE 107 TUCSON, ARIZONA 85719
PH. (520) 770-1789 FAX. (520) 792-2539

ASBESTOS SAMPLE LOCATIONS

Former Flint Oil Site
APN 116-23-2070
TUCSON, ARIZONA

EXHIBIT 1



LEGEND

□ APPROXIMATE SAMPLE LOCATION OF LEAD BASED PAINT (ABOVE 5,000 PPM)

LBPs

L-1 : Light Pink on Plaster
L-2 : White on Plaster
L-3 : Greyish White on Wood Window Frame
L-4 : Yellow on Wood Door Frame
L-5 : Yellow on Wood Roof

N

Project Mngr: DRS	Project No. 63207024
Drawn By: DRS	Scale: NOT SHOWN
Checked By: DDK	File No. 63207024.dwg
Approved By: DDK	Date: 03-2020

Terracon
Consulting Engineers and Scientists
355 SOUTH EUCLID, SUITE 107 TUCSON, ARIZONA 85719
PH. (520) 770-1789 FAX. (520) 792-2539

PAINT CHIP SAMPLE LOCATIONS

Former Flint Oil Site
APN 116-23-2070
TUCSON, ARIZONA

EXHIBIT 2

APPENDIX E
ANALYTICAL LABORATORY REPORTS AND CHAIN OF CUSTODY

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PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: Terracon
Project: Flint Oil Company
Project No: 63207024
Identification: Asbestos, Bulk Sample Analysis
Test Method: Polarized Light Microscopy/Dispersion Staining (PLM/DS)
EPA Method 600/R-93/116

Lab Job No.: PLM-22789
Set No.: 33526
Report Date: 3/12/2020
Sample Date: 3/6/2020

On 3/10/2020, twenty-four (24) bulk samples were submitted by Mr. Derek Sizemore of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL810551	1	Plaster Walls - 0-3	None Detected - Paint Layer None Detected - Plaster
CL810552	2	Plaster Walls - 0-3	None Detected - Paint Layer None Detected - Plaster
CL810553	3	Plaster Walls - 0-1	None Detected - Paint Layer None Detected - Plaster
CL810554	4	Brick/Mortar - Exterior	None Detected - Paint Layer None Detected - Brick None Detected - Mortar
CL810555	5	Brick/Mortar - Exterior	None Detected - Brick None Detected - Mortar
CL810556	6	Brick/Mortar - Exterior	None Detected - Brick None Detected - Mortar
CL810557	7	Concrete Footings - Exterior	None Detected
CL810558	8	Concrete Footings - Exterior	None Detected
CL810559	9	Concrete Footings - Exterior	None Detected
CL810560	10	12" X 12" ACT - 0-3	None Detected
CL810561	11	12" X 12" ACT - 0-1	None Detected
CL810562	12	12" X 12" ACT - 0-2	None Detected
CL810563	13	Roof Tar - Roof	None Detected
CL810564	14	Roof Tar - Roof	None Detected
CL810565	15	Roof Tar - Roof	None Detected
CL810566	16	9" X 9" VFT/Mastic - 0-2	5% Chrysotile - Floor Tile 5% Chrysotile - Black Mastic

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-22789
Project:	Flint Oil Company	Set No.:	33526
Project No:	63207024	Report Date:	3/12/2020
Identification:	Asbestos, Bulk Sample Analysis	Sample Date:	3/6/2020
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 3/10/2020, twenty-four (24) bulk samples were submitted by Mr. Derek Sizemore of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein. The results are summarized below:

Lab Sample No.	Client Field I.D.	Sample Description/Location	Asbestos Content
CL810567	17	9" X 9" VFT/Mastic - 0-3	3% Chrysotile - Floor Tile None Detected - Yellow Mastic
CL810568	18	9" X 9" VFT/Mastic - 0-3	5% Chrysotile - Floor Tile 5% Chrysotile - Black Mastic
CL810569	19	Wallpaper Adhesive - 0-2	None Detected - Wall Covering None Detected - Clear Adhesive
CL810570	20	Wallpaper Adhesive - 0-2	None Detected - Wall Covering None Detected - Clear Adhesive
CL810571	21	Wallpaper Adhesive - 0-2	None Detected - Wall Covering None Detected - Clear Adhesive
CL810572	22	Transite Pipe - Exterior	18% Chrysotile 2% Crocidolite
CL810573	23	Transite Pipe - Exterior	18% Chrysotile 2% Crocidolite
CL810574	24	Transite Pipe - Exterior	18% Chrysotile 2% Crocidolite

These samples were analyzed by layers. The overall percent asbestos for the sample is reported when relevant. The EPA considers a material to be asbestos containing only if it contains greater than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also indicate that Regulated Asbestos Containing Materials (RACM) – materials that are friable or may become friable – be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. CatesLab utilizes CVAE on a routine basis and does not include point counting unless specifically requested by the client. The results may not be reproduced except in full.

PLM REPORT SUMMARY

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client:	Terracon	Lab Job No.:	PLM-22789
Project:	Flint Oil Company	Set No.:	33526
Project No:	63207024	Report Date:	3/12/2020
Identification:	Asbestos, Bulk Sample Analysis	Sample Date:	3/6/2020
Test Method:	Polarized Light Microscopy/Dispersion Staining (PLM/DS) EPA Method 600/R-93/116		

On 3/10/2020, twenty-four (24) bulk samples were submitted by Mr. Derek Sizemore of Terracon for asbestos analysis by PLM/DS. Copies of the lab data sheets are attached; additional information may be found therein.

STATEMENT OF LABORATORY ACCREDITATION

The samples were analyzed in general accordance with the procedures outlined in the Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116 or the U.S. Environmental Protection Agency EPA 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples, by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Specific questions concerning bulk sample results shall be directed to the Laboratory Director.

Analyst: Chris Munch

Laboratory Director: John R. Cates, P.G.

Approved Signatory:

NVLAP LAB CODE 200569-0

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **1**
Sample Description: **Plaster Walls - 0-3**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810551**

Layer 1 Paint Layer

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
White	Hard	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Paint	100		Non-fibrous						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Layer 2 Plaster

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard / Blocky	Yes	ND	ND	95

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810551**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **2**
Sample Description: **Plaster Walls - 0-3**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810552**

Layer 1 Paint Layer

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
White	Hard	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Paint	100		Non-fibrous						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Layer 2 Plaster

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard / Blocky	Yes	ND	ND	95

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810552**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **3**
Sample Description: **Plaster Walls - 0-1**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810553**

Layer 1 Paint Layer

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
White	Hard	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Paint	100		Non-fibrous						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Layer 2 Plaster

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard / Blocky	Yes	ND	ND	95

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810553**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **4**
Sample Description: **Brick/Mortar - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810554**

Layer 1 Paint Layer

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
White	Hard	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Paint	100		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **None Detected**

Layer 2 Brick

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brick Red	Blocky/Hard	Yes	ND	ND	75

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Fired Clays	100		Non-fibrous						

Prep/treatment: **mechanical separation**
Asbestos Content: **None Detected**

Layer 3 Mortar

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Blocky	Yes	ND	ND	20

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**
Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810554**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **5**
Sample Description: **Brick/Mortar - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810555**

Layer 1 Brick

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brick Red	Blocky/Hard	Yes	ND	ND	80

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Fired Clays	100		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Layer 2 Mortar

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Blocky	Yes	ND	ND	20

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810555**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **6**
Sample Description: **Brick/Mortar - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810556**

Layer 1 Brick

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brick Red	Blocky/Hard	Yes	ND	ND	80

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Fired Clays	100		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Layer 2 Mortar

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Blocky	Yes	ND	ND	20

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	65		Non-fibrous						
Cement Binders	35		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810556**

Bulk Asbestos Analysis Sheet

Cates Laboratories
1339 Motor Circle
Dallas, Texas 75207 (214) 920-5006

EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **7**
Sample Description: **Concrete Footings - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810557**

Layer 1 **Concrete**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Cementitious	Yes	ND	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	**60**		**Non-fibrous**						
Cement Binders	**40**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810557**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **8**
Sample Description: **Concrete Footings - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810558**

Layer 1 **Concrete**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Cementitious	Yes	ND	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	**60**		**Non-fibrous**						
Cement Binders	**40**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810558**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **9**
Sample Description: **Concrete Footings - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810559**

Layer 1 **Concrete**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Cementitious	Yes	ND	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Aggregate	**60**		**Non-fibrous**						
Cement Binders	**40**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810559**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **10**
Sample Description: **12" X 12" ACT - 0-3**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810560**

Layer 1 **Ceiling tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan w/wht pt	Fibrous	Yes	85	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	**85**		**ribbons**				**high**		
Binders / Paint	**15**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810560**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
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Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **11**
Sample Description: **12" X 12" ACT - 0-1**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810561**

Layer 1 **Ceiling tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan w/wht pt	Fibrous	Yes	85	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	**85**		**ribbons**				**high**		
Binders / Paint	**15**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810561**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **12**
Sample Description: **12" X 12" ACT - 0-2**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810562**

Layer 1 **Ceiling tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan w/wht pt	Fibrous	Yes	85	ND	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	**85**		**ribbons**				**high**		
Binders / Paint	**15**		**Non-fibrous**						

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810562**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **13**
Sample Description: **Roof Tar - Roof**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810563**

Layer 1 **Roofing Tar**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Black	**Asphaltic**	**Yes**	**ND**	**ND**	**100**

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glass Fibers	**5**		**straight**	**none**			**none**		
Tar Binders	**95**		**Non-fibrous**						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810563**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **14**
Sample Description: **Roof Tar - Roof**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810564**

Layer 1 **Roofing Tar**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Black	**Asphaltic**	**Yes**	**ND**	**ND**	**100**

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glass Fibers	**5**		**straight**	**none**			**none**		
Tar Binders	**95**		**Non-fibrous**						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810564**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **15**
Sample Description: **Roof Tar - Roof**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810565**

Layer 1 **Roofing Tar**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Black	**Asphaltic**	**Yes**	**ND**	**ND**	**100**

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glass Fibers	**5**		**straight**	**none**			**none**		
Tar Binders	**95**		**Non-fibrous**						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810565**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **16**
Sample Description: **9" X 9" VFT/Mastic - 0-2**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810566**

Layer 1 **Floor Tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard	Yes	ND	ND	95

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	5	4	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Aggregate/Vinyl Binders	95		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **5% Chrysotile**

Layer 2 **Black Mastic**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Black	Asphaltic	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	5	4	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Aggregate/Tar Binders	95		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **5% Chrysotile**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810566**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **17**
Sample Description: **9" X 9" VFT/Mastic - 0-3**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810567**

Layer 1 **Floor Tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard	Yes	ND	ND	99

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	3	3	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Aggregate/Vinyl Binders	97		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **3% Chrysotile**

Layer 2 **Yellow Mastic**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Yellow-Tan	Rubbery	Yes	ND	ND	1

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glue Binders	100		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810567**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **18**
Sample Description: **9" X 9" VFT/Mastic - 0-3**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810568**

Layer 1 **Floor Tile**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Tan	Hard	Yes	ND	ND	95

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	5	4	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Aggregate/Vinyl Binders	95		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **5% Chrysotile**

Layer 2 **Black Mastic**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Black	Asphaltic	Yes	ND	ND	5

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	5	4	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Aggregate/Tar Binders	95		Non-fibrous						

Prep/treatment: **heat / melt**
Asbestos Content: **5% Chrysotile**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810568**

Bulk Asbestos Analysis Sheet

Cates Laboratories
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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **19**
Sample Description: **Wallpaper Adhesive - 0-2**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810569**

Layer 1 **Wall Covering**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brown/White	Fibrous	Yes	100	ND	98

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	100		ribbons				high		

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Layer 2 **Clear Adhesive**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Clear	Rubbery	Yes	ND	ND	2

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glue Binders	100		Non-fibrous						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810569**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **20**
Sample Description: **Wallpaper Adhesive - 0-2**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810570**

Layer 1 **Wall Covering**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brown/White	Fibrous	Yes	100	ND	98

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	100		ribbons				high		

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Layer 2 **Clear Adhesive**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Clear	Rubbery	Yes	ND	ND	2

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glue Binders	100		Non-fibrous						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810570**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
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Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **21**
Sample Description: **Wallpaper Adhesive - 0-2**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810571**

Layer 1 **Wall Covering**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Brown/White	**Fibrous**	**Yes**	**100**	**ND**	**98**

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Cellulose Fibers	**100**		**ribbons**				**high**		

Prep/treatment: **mechanical separation**

Asbestos Content: **None Detected**

Layer 2 **Clear Adhesive**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Clear	**Rubbery**	**Yes**	**ND**	**ND**	**2**

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Glue Binders	**100**		**Non-fibrous**						

Prep/treatment: **heat / melt**

Asbestos Content: **None Detected**

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810571**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **22**
Sample Description: **Transite Pipe - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810572**

Layer 1 **Cement Pipe**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Fibrous	Yes	20	20	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	18	7	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Crocidolite	2	2	Straight	blue to grey	1.698	1.703	low-md	Parallel	-
Cement Binders	80		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **18% Chrysotile**
2% Crocidolite

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810572**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **23**
Sample Description: **Transite Pipe - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810573**

Layer 1 **Cement Pipe**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Fibrous	Yes	20	20	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	18	7	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Crocidolite	2	2	Straight	blue to grey	1.698	1.703	low-md	Parallel	-
Cement Binders	80		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **18% Chrysotile**
2% Crocidolite

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789**
Sample #: **CL810573**

Bulk Asbestos Analysis Sheet

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EPA Method 600/R-93/116

NVLAP Lab No. 200569-0
TDSHS License No. 30-0287

Client: **Terracon**
Project: **Flint Oil Company**
Project #: **63207024**
Field ID #: **24**
Sample Description: **Transite Pipe - Exterior**

Lab Proj #: **PLM-22789**
Set #: **33526**
Sample #: **CL810574**

Layer 1 **Cement Pipe**

Stereoscopic Examination

Color	Texture	Homogeneous?	% Fibrous	% Asbestos	% of Sample
Grey	Hard / Fibrous	Yes	20	20	100

PLM Examination:

Components	%	+/-	Morphology	Color/ Pleochroism	Parallel Ref. Index	Perpendicular Ref. Index	Biref	Extinction Angle	Sign of Elongation
Chrysotile	18	7	Silky / Wavy	None	1.556	1.549	low	Parallel	+
Crocidolite	2	2	Straight	blue to grey	1.698	1.703	low-md	Parallel	-
Cement Binders	80		Non-fibrous						

Prep/treatment: **mechanical separation**

Asbestos Content: **18% Chrysotile**
2% Crocidolite

Comments:

Analyst: **Chris Munch**
Date Analyzed: **3/12/2020**

Lab Job #: **PLM-22789** Sample #: **CL810574**

CATES LABORATORIES

CHAIN OF CUSTODY

CL Project No. PLM - 22789
(Lab Only) SET - 33526

Company: Terracon Consultant's, Inc.

Contact/Results to: Derek Sizemore Verbal ☐ Email ■ Fax ☐ (check all that apply)

Email(s). derek sizemore@terracon.com

Telephone No..5207984844 Fax No :

Project Information

Flint Oil co Project No.: 63207024

Address: P.O. No.:

Turnaround (check one)

RUSH ASAP ☐ RUSH 24HR ☐ 2 DAY (standard) 3-4 DAY ☐ 5 DAY ☐

Testing Services (check all that apply)

Asbestos		IAQ - Mold (Non-Viable)	
PLM-BULK EPA 600/R-93/116 ■ Point Count (400) ☐	PCM-AIR NIOSH 7400 ☐ OSHA: TWA ☐	AIR (spore trap) - Standard Profile (count/genus identification) AIR (spore trap) - Expanded Profile (w/insect parts/pollen/skin) BULK (tape lift, swab) - Standard Profile (genus identification)	☐ ☐ ☐

Cates Lab No. Range (Lab Only).	Sample Date	No. of Samples: 24 Positive Stop: Yes ☐ No ☐
810551 - 810574	3/6/20	

Sample No.	Sample Description/Location	Volume (air only)
	SEE ATTACHED SAMPLE LOG	
	Note: Please point count textured results identified in PLM at 3% or less. On point count, please positive stop at 1.5% or higher. Please report drywall systems with an additional composite line.	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	3/9/20 1600	[signature] 9:30	3/10/20

AF72017-09 - issued 4/3/2017 Walk-In☐ D-Drop☐ F-Drop☐ FedEx ☒ UPS☐ Lonestar ☐ USPS ☐

Terracon PN: 63207024 **Asbestos Sample Location Log**

PUM - 22789
SET - 33526

Building Name/Site Address:
Inspector(s): Derek Sizemore

Sample No: (HA, BS Code, Sample No.)	Material Sampled	Location	Collection Date
1 - HP2 1	Plaster Walls	0-3	3/6/20
" - " - 2	"	0-3	"
" - " - 3	"	0-1	"
2 - MA1 - 4	Brick/Mortar	Exterior	"
" - " - 5	"	"	"
" - " - 6	"	"	"
3 - FC2 - 7	Concrete Footings	"	"
" - " - 8	"	"	"
" - " - 9	"	"	"
4 - CT1 - 10	12x12 ACT	0-3	"
" - " - 11	"	0-1	"
" - " - 12	"	0-2	"
5 - RF1 - 13	Roof Tar	Roof	"
" - " - 14	"	"	"
" - " - 15	"	"	"
6 - FT1 - 16	9x9 VFT/Mastic	0-2	"
" - " - 17	"	0-3	"
" - " - 18	"	"	"

Terracon PN: 63207024 **Asbestos Sample Location Log**

PLM – 22789
SET- 33526

Building Name/Site Address: Flint GI Co
Inspector(s): Derek Sizemore

Sample No: (HA, BS Code, Sample No.)	Material Sampled	Location	Collection Date
7 - MGS 19	Wallpaper Adhesive	0-2	3/6/20
↓ - ↓ - 20	↓	↓	↓
↓ - ↓ - 21	↓	↓	↓
8 - CP2 - 22	Transite Pipe	Exterior	↓
↓ - ↓ - 23	↓	↓	↓
↓ - ↓ - 24	↓	↓	↓
- -			
- -			
- -			
- -			
- -			
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- -			
- -			
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- -			
- -			

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Terracon
355 South Euclid, Suite 107
Tucson AZ 85719

Client: TER692

Report Date: 3/13/2020
Report No.: 611347 - Lead Paint
Project: Former Flint Oil Company
Project No.: 63207024

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 6987089 **Description:** Light Pink On Plaster **Result (% by Weight):** 1.8
Client No.: L-1 **Location:** 0.3 **Result (ppm):** 18000
Comments:

Lab No.: 6987090 **Description:** White On Plaster **Result (% by Weight):** 0.99
Client No.: L-2 **Location:** 0.2 **Result (ppm):** 9900
Comments:

Lab No.: 6987091 **Description:** Greyish-White Wood Window Frame **Result (% by Weight):** 3.5
Client No.: L-3 **Location:** Exterior **Result (ppm):** 35000
Comments:

Lab No.: 6987092 **Description:** Yellow On Wood Door Frame **Result (% by Weight):** 4.4
Client No.: L-4 **Location:** Exterior **Result (ppm):** 44000
Comments:

Lab No.: 6987093 **Description:** Yellow On Wood Roof **Result (% by Weight):** 5.6
Client No.: L-5 **Location:** Exterior **Result (ppm):** 56000
Comments:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/10/2020
Date Analyzed: 03/13/2020
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	Terracon	Report Date:	3/13/2020
	355 South Euclid, Suite 107	Report No.:	611347 - Lead Paint
	Tucson AZ 85719	Project:	Former Flint Oil Company
		Project No.:	63207024
Client:	TER692		

Appendix to Analytical Report:

Customer Contact:
Method: ASTM D3335-85a, US EPA SW846 3050B:7000B

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager:wchampion@iatl.com
iATL Account Representative: Semih Kocahasan
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and ir our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

This report meets the standards set forth in the EPA's National Lead Laboratory Accreditation Program (NLLAP) through the Laboratory Quality System Requirements (LQSR) Revision 3.0 November 5, 2007. All Environmental Lead Proficiency Analytical Testing (ELPAT) is through the AIHA-PAT established program.

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.
All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.
Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.
Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.
LSD=0.2 ppm MDL=0.005% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com.**

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	Terracon	Report Date:	3/13/2020
	355 South Euclid, Suite 107	Report No.:	611347 - Lead Paint
	Tucson AZ 85719	Project:	Former Flint Oil Company
		Project No.:	63207024
Client:	TER692		

* Insufficient sample provided to perform QC reanalysis (<200 mg)
** Not enough sample provided to analyze (<50 mg)
*** Matrix / substrate interference possible.

< less than sign, signifies none-detected below the empirical value based upon sub-sampled mass. This is often below the Reporting Limit (see above).

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

– Environmental Lead –

Contact Information

Client Company:	Terracon Consultants, Inc.	**Project Number:**	63207024
Office Address:	355 South Euclid Suite 107	**Project Name:**	Former Flint Oil Company
City, State, Zip:	Tucson, AZ 85719	**Primary Contact:**	Derek Sizemore
Fax Number:	520-792-2539	**Office Phone:**	520-798-4844
Email Address:	derek.sizemore@terracon.com	**Cell Phone:**	520-730-2007

iATL is accredited by the National Lead Laboratory Accreditation Program (NLLAP) to perform analytical testing of environmental samples for lead (Pb). The accreditation is through AIHA-LAP, LLC and several other nationally recognized state programs.

PLEASE PROVIDE ANALYTICAL RESULTS IN PARTS PER MILLION

Matrix/Method:

- ☑ Paint by AAS: ASTM D3335-85a, 2009
- ☐ Wipe/Dust by AAS: SW 846: 3050B: 700B, 2010
- ☐ Air by AAS: NIOSH 7082, 1994
- ☐ Soil by AAS: EPA SW 846 (Soil)
- ☐ Water by AAS-GF: ASTM D3559-03D, USEPA 40CFR 141.11B, 2010
- ☐ Other Metals (Cd, Zn, Cr) by AAS
- ☐ Toxicity Characteristic Leaching Procedure (TCLP) by AAS: USEPA 1311
- ☐ Other _____

Special Instructions:

_____

_____

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☑ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	Derek Sizemore	Date:	3-9-2020	Time:	1630
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:		Time:	
Analysis(Name(s) / iATL):	3/13/20	Date:		Time:	
QA/QC Review (Name / iATL):	3/13/20	Date:		Time:	
Archived / Released:	QA/QC InterLAB Use:	Date:		Time:	

Terracon PN: 63207029 **Lead Paint Sample Location Log**

Building Name/Site Address: Former Daycare
Inspector(s): Derek R. Sizemore

Sample No:	Material Sampled	Location	Collection Date
L-1	Light pink on plaster	0-3 6987089	3/6
L-2	white on plaster	0-2 6987090	3/6
L-3	grayish-white wood window frame	Exterior 6987091	3/6
L-4	yellow on wood door frame	Exterior 6987092	3/6
L-5	yellow on wood roof	Exterior 6987093	3/6

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway, Suite B, Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818
INFO@IATL.COM

DAILY QUALITY CONTROL DATA

LEAD SAMPLE ANALYSIS

(DATE: 03 / 13 / 20)

Standard	Total Lead (mg)	Percent Recovery **
Reagent Blank	0.000	< LOQ
Blank Spike	0.500	100
Lab Control Std	1.350	95
Matrix Spike - LBP *	0.41	98
Matrix Spike - Wipe *	0.40	97
Matrix Spike - Soil *		
Matrix spike - Air *	0.050	98
2.5 ppm Standard	0.25	101
10.0 ppm Standard	1.0	99
40.0 ppm Standard	4.0	99

AIHA-LAP, LLC No. 100188 **NYSDOH-ELAP No. 11021**

Analysis Method: ASTM D3335-85A
NIOSH 7082
EPA SW846 3050B 7000B

Comments: IATL assumes that all sampling complies with accepted methods.
All client supplied sampling data is assumed to be correct when calculating results.
Detection limit based upon 0.2 mg/L reporting limit and sample size.
* NIST Traceable
** 80-120% acceptable limits.

Analyzed By: C. Shafer

Date: 3/13/20

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 16, 2020

Terracon - Tucson, AZ

Sample Delivery Group:	L1197301
Samples Received:	03/10/2020
Project Number:	63207024
Description:	Flint Oil Co

Report To: Derek Sizemore
355 South Euclid, Ste 107
Tucson, AZ 85719

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

TCLP 1 L1197301-01 Waste

Collected by: Derek Sizemore
Collected date/time: 03/06/20 11:00
Received date/time: 03/10/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1443347	1	03/13/20 09:07	03/13/20 09:07	IDW	Mt. Juliet, TN
Metals (ICP) by Method 6010C	WG1444384	1	03/15/20 10:12	03/15/20 15:50	CCE	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		3/13/2020 9:07:10 AM	WG1443347
Fluid	1		3/13/2020 9:07:10 AM	WG1443347
Initial pH	8.07		3/13/2020 9:07:10 AM	WG1443347
Final pH	5.49		3/13/2020 9:07:10 AM	WG1443347

Metals (ICP) by Method 6010C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Lead	ND		0.100	5	1	03/15/2020 15:50	WG1444384

Method Blank (MB)

(MB) R3508843-1 03/15/20 15:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lead	U		0.0330	0.100

Laboratory Control Sample (LCS)

(LCS) R3508843-2 03/15/20 15:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	10.0	9.80	98.0	80.0-120	

L1197301-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1197301-01 03/15/20 15:50 • (MS) R3508843-4 03/15/20 15:56 • (MSD) R3508843-5 03/15/20 15:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	10.0	ND	9.76	9.93	97.6	99.3	1	75.0-125			1.78	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

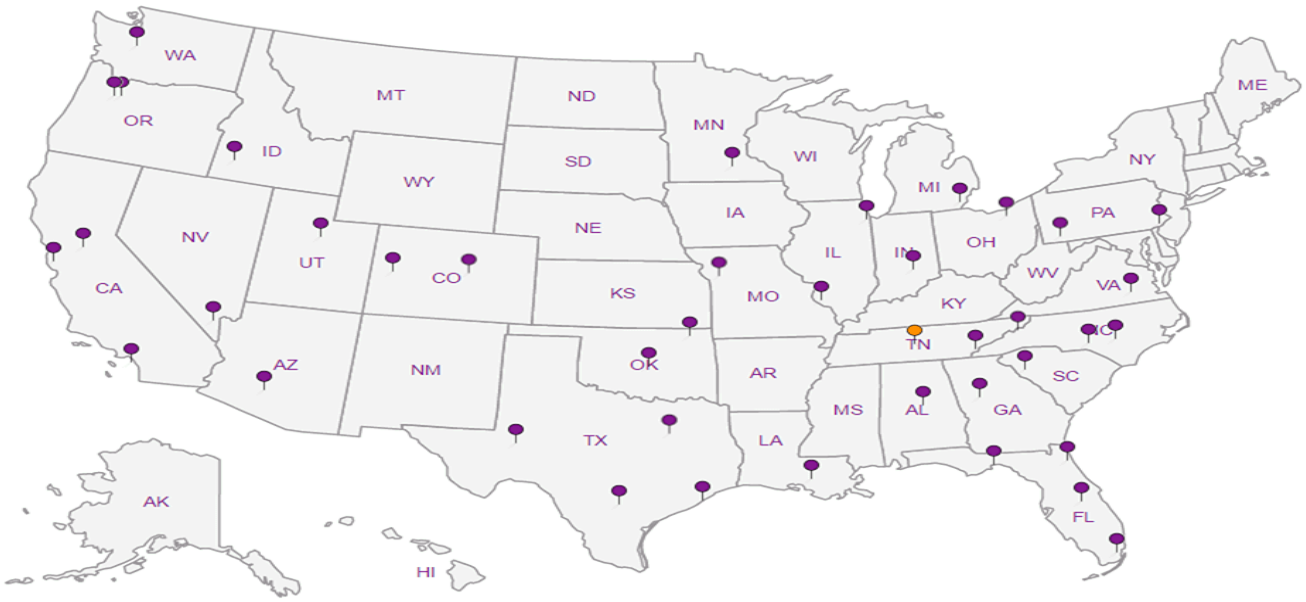
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1197301

H197

Acctnum:

Template:

Prelogin:

TSR: Daphne Richards

PB:

Shipped Via:

Report to: Derek Sizemore

Email To: derek.sizemore@terracon.com

Project Description: Flint Oil Co.

City/State Collected: Tucson, AZ

Phone: 520-770-1789
Fax: 520-792-2539

Client Project # 63207024

Lab Project #

Site/Facility ID #

P.O. #

Quote #

Collected by (print): Derek Sizemore

Collected by (signature):

Immediately Packed on Ice N___ Y___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Full Scan ICP 6010/250mL HDPE/HNO3

TCLP for Lead

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time			Remarks	Sample # (lab only)
TCLP1	Comp	OT	—	3/6/20	1100	1	X		01

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other Bldg Mats.

Remarks:
~~Full Scan ICP - TAL 23 Metals + B, Mo, Si, Sr, S, Sn, Ti~~

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD SCREEN: <0.5 mR/hr

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 4794 8836 9737

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: AMB °C Bottles Received: 1

If preservation required by Login: Date/Time

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/9/20	1600	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			3/10/2020 830

Hold:

Condition: NCF / OK

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APPENDIX F
INSPECTOR CERTIFICATIONS

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THE ASBESTOS INSTITUTE

Certifies that

Derek Sizemore

has attended and received instruction in the EPA approved course

AHERA Building Inspector Refresher

on

July 03, 2019

and successfully completed and passed the competency exam.

ON-4644-82-070319

Date of Examination:
3-Jul-2019

Date of Expiration:
03-Jul-2020

William T. Cavness
Director

Approved Instructor

THE ASBESTOS INSTITUTE
20033 N. 19th Ave, Building 6, Phoenix, AZ 85027
602-864-6564 – www.theasbestosinstitute.com

This training meets all requirements for asbestos certification under Toxic Substance Control Act Title II.

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APPENDIX G
NOTICE TO PROCEED LETTER

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CITY OF TUCSON
ENVIRONMENTAL & GENERAL SERVICES DEPARTMENT

February 26, 2020

VIA E-MAIL AND U.S. MAIL

Mr. Derek Koller
Terracon Consultants, Inc.
355 South Euclid Avenue, Suite 107
Tucson, Arizona 85719

Re: Notice to Proceed, HUD-Compliant Phase I Environmental Site Assessment and Asbestos and Lead-Based Paint Survey
Former Flint Oil Property, Tucson, Arizona, APN 116-23-2070

Dear Mr. Koller:

This letter serves as a Notice to Proceed (NTP) for Terracon Consultants, Inc. (Terracon) to conduct a HUD-Compliant Phase I Environmental Site Assessment (ESA) and Asbestos and Lead-based Paint Survey for the Former Flint Oil Property, Tucson, Arizona. The scope of work will be performed in accordance with the attached revised Terracon proposal dated February 11, 2020.

Phase I ESA and Asbestos and Lead-based Paint Survey will be completed for the not-to-exceed amount of [redacted] unless there is prior written approval by the City of Tucson, Environmental & General Services. This work shall comply with the requirements described in the City of Tucson Contract 141030. Terracon will have three weeks to complete the draft Phase I ESA complete the Asbestos and Lead-based Paint Survey.

Please contact Gira Patel at (520) 837-3742 if you have any questions.

Sincerely,

Frank Bonillas
Environmental Manager

FB/GP/rm

Enclosure: Terracon Consultants, Inc. Proposal Dated February 11, 2020

c: Liz Morales, City of Tucson, Housing and Community Development
Svetlana Tchourbanova, City of Tucson, Housing and Community Development
Gira Patel, City of Tucson, Environmental & General Services

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